Effects of Climate Variability and Change on Urban Stormwater System: Sensitivity Analysis on Des Moines Creek System at Seattle-Tacoma International Airport

Felix Kristanovich, Battelle Pacific Northwest National Laboratory*

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Managers of water resources in smaller basins are concerned about potential impacts from global warning on their watersheds. While the evidence is more pronounced in the snow dominated watersheds in Western Washington, it is unclear whether any effects will be felt in small urban rainfall fed watersheds, such as Des Moines Creek in Southern Puget Sound, feeding facilities at the SeaTac Airport. The existing 2006 hydrologic HSPF model was adjusted to reflect expected changes in meteorological conditions, such as projected changes in air temperature, evapotranspiration, and precipitation for two hydrologic conditions expected in years 2050 and 2100. The sensitivity analysis was conducted for extreme dry and extreme wet conditions. The modeling results were used to evaluate improvements in stormwater facilities at the SeaTac Airport.